Technical Report Documentation Page

1. Report No.	2. Government Accession No.	3. Recipient's Catalog No.
UMTA-DC-06-0157-79-4		

4. Title and Subtitle	5. Report Date
Proceedings of the Third UMTA R&D Priorities Conference, Cambridge, Massachusetts, November 1978, Volume IV: Service and Methods Demonstrations Workshops	November 1978
	6. Performing Organization Code
7. Author(s)	8. Performing Organization Report No.
9. Performing Organization Name and Address American Public Transit Association 1100 Seventeenth Street, S.W. Washington, D. C. 20036	10. Work Unit No. (TRAIS) DC-06-9157
	11. Contract or Grant No. DOT-UT-70026
12. Sponsoring Agency Name and Address U.S. Department of Transportation Urban Mass Transportation Administration 400 Seventh Street, S.W. Washington, D. C. 20590	13. Type of Report and Period Covered Conference Proceedings
	14. Sponsoring Agency Code

15. Supplementary Notes

Sequel to Report No. UMTA-DC-06-9136-76-1 (PB 255-898), Proceedings of the UMTA/APTA R&D Priorities Conference, February 1978; and UMTA-DC-06-1057-77-1 (PB 266-158), Proceedings of the Second R&D Priorities Conference, December 1976.

16. Abstract

This is a compilation of material that was presented at the Third UMTA R&D Priorities Conference Workshops on Service and Methods Demonstrations. Part I deals with pricing policy innovations and includes discussions of the general objectives of the program, where the emphasis in this program ought to be placed from the viewpoint of the transit operating industry, and the evaluation of this pricing policy innovation program. Part II, conventional transit and paratransit service innovations, includes discussions of conventional transit service demonstrations and the paratransit demonstration program. This volume contains five resource papers which can be found summarized in Volume I of this report along with summaries of other workshop sessions. Volume I also includes the proceedings of the general sessions and a listing of conference participants.

17. Key Words	18. Distribution Statement
Conference Proceedings Transit Research and Development Technology Delivery Systems Implementing Innovations Needs Priorities Information Dissemination	Available to the public through the National Technical Information Service Springfield, Virginia 22161

19. Security Classif. (of this report)	20. Security Classif. (of this page)	21. No. of Pages	22. Price
Unclassified	Unclassified		

Form DOT F 1700.7 (8-72) Reproduction of completed page authorized

PREFACE

This report contains proceedings of workshop sessions of the Third Urban Mass Transportation Administration R&D Priorities Conference which was held at the U. S. Department of Transportation's Transportation Systems Center in Cambridge, Massachusetts, November 16 and 17, 1978. This volume contains the following:

Service and Methods Demonstrations Workshops

Part I : Pricing Policy Innovations
Part II: Conventional Transit and Paratransit Service Innovations

These conferences are sponsored periodically by UMTA to enable them to communicate directly with those who represent the views of transit users, operators of public transportation systems, suppliers of equipment and services, the research community, and governments at the State, local, and Federal levels. The purpose of the Third Conference was to provide a current review of UMTA's research and development plans and to solicit recommendations for improving the direction and effectiveness of its program. The conference included general sessions on research and development policy and a total of fifteen half-day workshops on research, development, and demonstrations in urban transportation systems, technologies, planning, management, and services.

The volume containing proceedings of the general sessions and summarized reports of the workshops has been published by the Urban Mass Transportation Administration. However, because of the volume of papers, presentations, and discussions, detailed proceedings of the workshops have been compiled into separate reports by subject area. All of these documents are available from:

National Technical Information Service
U. S. Department of Commerce
5285 Port Royal Road
Springfield, Virginia 22161

When ordering copies of these reports from NTIS, please refer to the list of reports numbers and titles which follows.

1. Third UMTA R&D Priorities Conference, November 1978, Volume I: Proceedings of General Sessions and Summarized Reports of Workshops, DC-06-0157-79-1.

2. Third UMTA R&D Priorities Conference, November 1978, Volume II: Proceedings of Bus and Paratransit Technology Workshops, DC-06-0157-79-2.

   Part I : Paratransit Integration
   Part II: Bus Technology, Paratransit Vehicle Development, Flywheel Energy Storage System

3. Third UMTA R&D Priorities Conference, November 1978, Volume III: Proceedings of AGT and Advanced Systems Workshops, DC-06-0157-79-3.

   Part I : AGT Socio-Economic Research and AGT Applications
   Part II: AGT and Advanced Systems and Technologies

4. Third UMTA R&D Priorities Conference, November 1978, Volume IV: Proceedings of Service and Methods Demonstrations Workshops, DC-06-0157-79-4.

   Part I : Pricing Policy Innovations
   Part II: Conventional Transit and Paratransit Service Innovations

5. Third UMTA R&D Priorities Conference, November 1978, Volume V: Proceedings of UMTA Special Technology Programs Workshops, DC-06-0157-79-5.

   Part I : Safety, Qualification, and Life-Cycle Costing
   Part II: Consumer Inquiry Technology, National Cooperative Transit R&D Program, and Technology Sharing

6. Third UMTA R&D Priorities Conference, November 1978, Volume VI: Proceedings of Rail and Construction Technology Workshops, DC-06-0157-79-6.

   Part I : Railcars and Equipment
   Part II: Construction Technologies

7. Third UMTA R&D Priorities Conference, November 1978, Volume VII: Proceedings of Transit Management Workshops, DC-06-0157-79-7.

   Part I : Management Systems Developments
   Part II: Human Resources Development

8. Third UMTA R&D Priorities Conference, November 1978, Volume VIII: Proceedings of the Access for Elderly and Handicapped Persons Workshops, DC-06-0157-79-8.

   Part I : Planning and Regulation
   Part II: Demonstrations and Hardware

9. Third UMTA R&D Priorities Conference, November 1978, Volume IX: Proceedings of the Urban Transportation Planning Workshop, DC-06-0157-79-9.

SERVICE AND METHODS DEMONSTRATIONS I

Chairperson: *Phillip J. Ringo*, President, ATE Management and Service Company, Inc.

DEMONSTRATION AND RESEARCH CONCEPTS UNDER UMTA CONSIDERATION: *Bert Arrillaga*, Chief, Pricing Policy Division, UMTA

Panel: *Mr. Arrillaga*

David T. Hartgen, Head, Basic Research Unit, New York State Department of Transportation

Howard Slavin, Chief, Evaluation Branch, Transportation Systems Center

Roy Remy, Deputy Mayor of Los Angeles, Calif.

Reporter: *Marion Ott*, Urban Analysis Branch, Transportation Systems Center

TABLE OF CONTENTS

SERVICE AND METHODS DEMONSTRATIONS I

Philip Ringo 1

Bert Arrillaga 5

Howard Slavin 21

PHILIP J. RINGO
PRESIDENT, ATE MANAGEMENT AND SERVICE COMPANY, INC.
CINCINNATI, OHIO

As I understand what this two days is all about, is to try to help UMTA go get a handle on where we collectively think they should place their research priorities. So, if I have a goal, it is to try to see at the end of the session whether we can reach some kind of agreement or disagreement about where we think emphasis ought to be placed in the area of research and development in regard to pricing.

So, that's where I'm coming from. Since Bert made the mistake of making me Chairman, I get first shot--let me give you some of my broad perceptions in regard to the entire area of pricing, and since this is an UMTA funded seminar, I must open with the caveat that the opinions that I express are strictly mine. They aren't anyone else's. They do come from my bias and background, which is primarily transit operations. Our company manages 37 public transit systems all around the country, and so we get exposed to a wide range of pricing activities, and financing policies.

My first comment is that I think the industry in general applauds the overall direction of UMTA in the area of pricing research specifically, and as far as I'm concerned, in their efforts to increase the use of transit in off-peak.

Clearly, fare policy is one major ingredient in that effort, and it is one that I think we have to come to grips with in a serious way if we are going to continue the gains that we've generated in transit usage in the 70's.

When I get through, which will be shortly, Bert's going to talk about many of the projects which have been undertaken under the sponsorship of UMTA and I think that you will be impressed with the superb efforts of UMTA in this area.

Before Bert gets on stage, let me just give you some of my impressions as to what is happening in the industry in regards to pricing. It's been my recent experience that, industry-wise, fares are on the rise. In the early 70's we went through a period of general fare reductions. In fact, many of us became quite enamored with the quarter fare or less. However, as a general statement, I think that about a third of our clients in the past three years have increased fares and many others are seriously considering increases.

I must tell you that it is my impression that in the next two to four years, I think we will see a fifty-cent cash fare as a fairly standard item on most of the major transit systems in the United States. Again, that may good, that may be bad, but that's the trend that I see.

A correllary to that, is that there seems to be less of a sensitivity to those price increases in terms of loss of ridership than we have been used to dealing with traditionally in the transit industry. You've probably all heard of the Simpson and Curtin Formula which says, "1/3rd of 1% ridership loss for each 1% increase in fares." Frankly, I think that formula has lost validity. I can't tell you exactly what the new formula is, but I don't think that the loss is ridership is nearly as severe as had been projected in the past by that formula.

I don't think that we should be afraid of raising fares in 1978 and beyond. Another trend that hits us in the face all the time is the widely felt concern on the part of many board members that the fare box has got to be able to maintain a certain percentage of revenue against total expenses. In fact, many agencies are now adopting certain minimum percentages which the farebox must contribute or charges will be made.

I have my own opinions regarding free fare systems and I disagree with Dan Maroney in that regard. I don't think the free fare, generally, is good. I think that if the transit product has a value you ought to charge money for it. I think that when you have free fare system-wide, you get into some significant problems in terms of potential vandalism and abuse of the system itself.

However, I think in some selective cases -- some of the free fare demonstrations which we have seen, have been very effective. I refer to the ones related to downtown free zones. Those which generally make use of existing service, focus on movement of people in a downtown area. In my estimation they do two things: They decerase congestion, and they also get people on buses, in particular who have never been on transit before. I think those demonstrations have been very effective.

Other thinkg that are on my mind are the major push and pull, -- between fare simplification on one hand, and the very real concern regarding distance based fare.

I imagine that this is a subject which will receive considerable discussion following Burt's presentation, so with those general remarks I'll turn the program over to Burt and have him describe to all of us the activities that are either ongoing or being comtemplated by his office.

BERT ARRILLAGA, CHIEF
PRICING POLICY DIVISION, UMTA

PRICING POLICY INNOVATIONS

Thank you Phil, especially for your comments. I also want to thank the panel and the audience for attending the workshop today. I hope that by the end of the period you will have a very good idea of the programs UMTA is developing in the area of pricing policy innovations. And by the same token, I hope I will have some idea of the direction you feel we should take in this area.

In the presentation that follows, I'll initially mention the general objective of the Pricing Policy Division. While these objectives depict the general direction of the program, they are certainly not fixed but flexible enough to be responsive to the changing needs of the transportation community. I will then describe in detail a sample of the on-going research and demonstration projects as well as those planned for future years.

GENERAL OBJECTIVES - PRICING POLICY DIVISION

Work now planned under the general category of transportation pricing policies is a coherent effort to test and evaluate a broad spectrum of pricing strategies that will establish the basis for more definite UMTA policies as to pricing strategies to be encouraged. The program has evolved primarily into two major areas, transit pricing and service variation demonstrations and pricing disincentives for using the auto.

Transit pricing and service variation demonstrations aim to develop information on the appropriate allocation of scarce resources between subsidizing low fares and subsidizing service improvements. The consequences

of this in many cases is the development of cost effective incentive strategies to encourage the use of transit and other occupancy modes. Activties involve efforts to increase the convenience and decrease the cost of using the mass transit system so as to put it on a more competitive basis with the automobile. Demonstrations conceptualized in this area will provide the basis for formulating guidelines for transit operators in setting transit fare and service policies. Procedures are being developed to assist operators in estimating the impacts of various fares and service policies on ridership, cost and revenue. Related to these activities, are efforts to monitor ongoing projects to sharpen our evaluation of the relative impacts of service and fare changes in terms of ridership and productivity increases. In addition to this monitoring, special short range fare and service variation demonstrations will be implemented to obtain, quickly and cheaply, service effects that can be compared with fare effects.

The second effort in the pricing area is to evaluate pricing disincentives that can be used to directly and deliberately restrict the use of low occupancy modes. These demonstrations are based on the philsophy that transit incentives by themselves may not be fully effective in obtaining significant mode shifts from the automobile to the transit system. Only by applying specific disincentives to the low occupancy automobile combined with a package of ttangible and visible transportation improvements can significant increases in transit ridership be obtained that will reduce the congestion, pollution and energy consumption in our urban areas.

PRICING POLICY INNOVATIONS

In the transit pricing and service variation category, work is being performed in a) low fare or reduced fare transit, b) fare pre-or-post payment instruments, c) price and service improvements, and d) general fare and pricing policies.

In the category of auto pricing management techniques, demonstrations are being considered in the areas of parking pricing, corridor and spot pricing, and areawide road pricing. Because of social, political and institutional resistance to areawide pricing, we expect this concept to take more time to be implemented than the other strategies. Thus, parking pricing strategies is growing faster not only because it offers diverse options in managing automobile use but because of its familiarity and acceptability with the public and local officials. This implementation order is advantageous because familiarity with parking pricing strategies eases the understanding of the purposes of areawide controls such as roadway pricing.

ON-GOING DEMONSTRATION ACTIVITIES

Transit Pricing and Service Demonstrations

In the area of general fare policies, one major study was initiated on transfer policies and cost. The purpose is to compile as much information as possible in a structured manner so that transfer policies can be based on their expected benefits and costs. The study will identify and document alternative transit policies and their economic and user consequences based on current or recent practices in the United States.

Three fare-free related projects have been implemented in the area of free or reduced fare transit; two off-peak systemwide projects in Trenton,

New Jersey and Denver, Colorado and one for the central business district in Albany, New York. The demonstration in Denver, Colorado was implemented after a project in Salt Lake City, Utah, which has been under negotiation for a few years, was finally turned down by the regional council of governments and the transit authority.

The off-peak systemwide fare-free demonstrations will study the effects of fare abolitions during the off-peak hours including changes in the quality of service and in fare collection costs. The effects on the peaking of transit demand and the relation to sharp peak/off-peak differentials will also be studied.

Typically, the fare abolition will be from about 10:00 a.m. to 2:00 p.m. in Mercer County and 8:00 a.m. to 4:00 p.m. in Denver, Colorado on Monday through Friday; Saturdays, Sundays, and Holidays will be free all day. All vehicles on all major transit routes will be affected, and there is no planned service improvements since existing capacity should absorb any ridership increase.

The fare abolition for the central business district is designed to enhance the mobility within the downtown and is expected to be followed by controlled service improvements. This concept is specially promising since it can be the medium for large scale downtown redevelopment. This demonstration will provide guidelines to the transit industry on how to select downtown zones that support a fare-free policy and on the administration and operation of this concept. The impacts on transit users and non-users, economic activity, and vehicular and pedestrian volume will also be studied.

PRICING POLICY INNOVATIONS

In order to determine the aggregate impacts of different levels of fare increase on ridership, revenue, and cost, a study on fare increases was started early in FY1978. The information in this study will assist transit operations in establishing balanced fare policies that will not only include fare discounts but premium fares for specific traveling markets.

Two demonstration concepts in four cities have been implemented to promote the use of transit fare prepayment instruments and apply different types of pricing incentives. The distribution and promotion of transit fare prepayment instruments through employers was implemented in Sacramento, California and Jacksonville, Flordia. This concept also involves the use of payroll deduction as a major method of fare payment. Increases in usage of prepayment instruments are expected by the convenience of the method of payment and the occasional discounts that will be provided by the transit agency and the employer.

Transit sales or periodic temporary discounts of fare prepayment instruments have been implemented in Austin, Texas, and Phoenix, Arizona. The objective of such a discount is twofold. First, new riders would be attracted to transit (thereby gaining a familiarity with the service characteristics of the system and the relevance of the service to their own travelling patterns), and a portion of these newcomers would remain patrons after the discount period ends. And second, some existing patrons would switch from cash payment to prepayment and would not switch back again after the temporary discounts ends.

In Austin, the sale is being applied to a commuter pass, monthly pass, shoppers ticket and twenty-ride ticket. In Phoenix, a new ten-ride ticket

will be introduced to complement a twenty-ride ticket and a monthly pass. Two temporary discounts varying from fifteen to fifty percent will be implemented in both sites.

UMTA is in the process of implementing demonstrations to investigate the trade offs between price and service changes and the relative contributions that each can make to improve the productivity of conventional mass transportation systems. The first of these demonstrations is in the Vancouver/Portland I-5 Corridor. Fare and service changes will be made affecting area coverage, vehicle supply, headway, and travel time. A carefully designed quasi experimental control will be applied to measure the individual impacts and the relative merits of price and service changes.

Pricing Disincentives Demonstrations

The city of Madison is being approved for the application of peak hour parking changes combined with a series of alternative mass transportation improvements. These changes are an initial measure that may lead into the implementation of the more far reaching areawide road pricing.

The State Department of Transportation of Hawaii has submitted a demonstration application for a feasibility study and demonstration development of areawide and corridor pricing applications. The State is expected to study the impacts and benefits of alternative pricing scenarios for specific problem areas in Honolulu. They will select and test if necessary different methods of charging user fees. On a periodic basis, they will conduct seminars to interact with the public regarding project development phases. An economic and legal study will also be performed. The results of this project should be a comprehensive technical study and implementation plan to be presented to the 1980 legislature for approval.

PRICING POLICY INNOVATIONS

Strong interest has been shown by two recreational communities (Hermosa Beach and Santa Cruz, California) in the application of areawide or parking pricing restrictions. The basic concept is to sell a special license or implement high parking charges in residential areas and central retail centers that are flooded with outside recreational traffic. As an alternative, this traffic would be diverted to park-and-ride lots. Presently, we are jointly developing comprehensive implementation designs that will form the basis for demonstration application in both cities.

In the specific areas of parking pricing strategies, we completed an evaluation of the impacts of differential parking prices in the formation of carpools in Seattle, Washington. This initial work has led to possible expansion of this project for full demonstration support and evaluation.

A research framework has been developed for determining the effect of residential parking permits on controlling auto use. A decision by the U.S. Supreme Court holding that such programs do not violate the "Equal Protection" clause has caused a number of recent implementations and thus opportunities for evaluations. Basic questions to be answered are: How do residents and non-residents respond? Effects on adjacent neighborhoods, retail trade, transit use, carpooling? This study will also define demonstration concepts for FY1980.

PLANNED DEMONSTRATION ACTIVITIES

Nine demonstration concepts are being planned for implementation in FY1979 and 1980:

a) Fare Integration for Intermodal and Interagency Coordination

b) Self Service/Cancellation Fare Collection System

c) Transfer Cost Elimination and Network Simplification

d) Graduated Fares by Level of Conventional Transit Services

e) Token Reinforcement Procedures for Increasing Off-Peak Ridership

f) Systemwide Credit Card Fare Post Payment

g) Promotional Fare Incentives

h) Price and Service Level Variations

i) Auto Pricing Management Methods

I will describe the first three and the last one in more detail.

Fare Integration for Intermodal and Interagency Coordination

In many of this nation's metropolitan areas, public transportation service is provided by more than one operator or agency, sometimes involving more than one mode of transportation. Most of these operators are municipally owned and their operations are often restricted to the political jurisdiction.

Fare policy decisions are usually made independently by municipalities and transit agencies. Decisions regarding the level of financial assistance or minimum acceptable farebox revenue are based on each municipality's goals and priorities. The consequence has been that transit trips operated by more than one agency often result in multiple cash payment. The inconvenience of having to pay two or three times for a single trip is aggravated by the fact

that most agencies require exact change. Moreover, the riddle of transfer privileges often leaves the transit rider confused and discouraged from using public transportation for nonroutine trips.

A similar situation occurs in cities where two more modes of public transportation exist. Some systems require tokens as proof payment, while surface bus systems demand the exact change. Most modern rapid transit systems require magnetic stored-fare cards, but suburban rail lines use commutation punch tickets. These differences in boarding and fare collection techniques discourage multimodal travel because they are not transferable. Multiple payment is both burdensome for the user and costly for the independent operator.

The proposed demonstration would test the establishment of a simplified joint fare structure in a region, or part of a region, where public transportation service is provided by several operators or where more than one mode is used. The fare integration project would provide a passenger fare structure with identical fares for broken or continuous journeys of the same length regardless of the mode, or combination of modes. Thus, passengers within the area covered would be able to change vehicles as required, with all fare barriers eliminated between the different operating agencies. In cases where more than one agency is involved, the revenues from the joint fare program could be divided among the agencies in some proportion to the travel costs generated by the traveler.

A demonstration of transit fare integration would provide us with at least the following information:

- o travel behavior changes from the joint fare structure including changes in mode choice and usage patterns for different types of people and different types of journeys
- o the penetration levels of the fare prepayment plans, if used, and the prepayment types preferred by the different transit markets,
- o the changes in operating costs for each agency, including fare collection cost savings, and operating cost savings because of reduced boarding and alighting times and the elimination of any duplication of service between agencies.
- o the administrative and other costs incurred by the participating transit agencies,
- o the effectiveness of the distribution methods used,
- o the quality and strength of the coordination efforts of the participating agencies, and
- o the awareness and acceptance of the joint fare program among the public at large.

The idea of coordinating modes and integrating agency operations through simplified fare collection methods has been illustrated by such European examples and the Hamburg Transport Community, the Orange Card in Paris, and the Red Bus Pass in London. Ridership has increased substantially in each of the examples and while an integrated fare has made many trips less expensive, overall system revenues have increased. These experiences

are attracting the attention of the U.S. transit community, but they do not provide enough basic information to reduce the high risk of substantial revenue loss to assure implementation in the U.S. These experiences have been useful in designing experimental demonstrations in the U.S.

Self-Service/Cancellation Fare Collection System

Self-service fare collection can be defined as a system in which the regular operating staff of transit vehicles or trains do not normally intervene to collect fares, nor to sell, cancel, or check tickets or passes, nor to check these operations carried out by the passengers themselves, who have electro/mechanical devices available for this purpose. Instead, a random post check of passengers is made to determine compliance similar to what is done for parking meters in the U.S. The function might be picked up as part of the street supervision and traffic operation now carried out by U.S. transit properties. The elimination of the supervision of the fare collection activity by the driver allows free access to the vehicles by all the doors and yields an improvement in the commercial speed, which again reaches the level achieved at the time of two-man service with driver and conductor. The removal of fare collection responsibilities from the driver also permits the transit property to implement a highly flexible fare structure having a wide variety of fare classifications and payment mechanisms which could not have been adopted using conventional techniques without significant driver involvement and service delays.

Self-service fare collection is common practice in Europe. Having grown as a result of rising labor costs, the introduction of trailered vehicles,

and the need for adopting more flexible fare policies, European applications are one of four basic types:

a) Fare collection by means of issuing/cancelling equipment installed at the stops only, which could be called the Swiss system as it is used in the principal Swiss cities of Zurich, Basle, Geneva, Bern, Lausanne, Luceren and Lugano;

b) Fare collection by means of cancelling equipment installed on the vehicles and ticket issuing equipment at the stops. As this system has been adopted in a large number of cities in the German Federal Republic, it can be called the German system;

c) Fare collection by issue-only equipment installed on the vehicles. This could be called the British system as it suits the habits of passengers in Great Britain who do not have prepayment tickets, and who buy their tickets singly; and

d) Semi-automatic fare collection by cancelling machines installed on the vehicles, which can be called the Continental European system, since it is very widespread in France, the Benelus countries and Scandinavia.

The application of similar fare collection techniques in the U.S. could yield substantial benefits. Transit management would be better able to implement a fare policy which would be an incentive to increased ridership and at the same time maximize the net revenue from each market segment, such as the regular commuter, the frequent off-peak rider, and the occasional passenger. Because in many cases the most effective fare policy must be established

empirically, transit management must have the ability to implement such features as short-term passes, multiple-ride tickets, and off-peak differentials. Self-Service Fare Collection offers the opportunity to achieve this flexibility while at the same time contributing to:

- o financial savings,
- o easing of work loads,
- o speeding up service, and
- o improving the movement of passengers inside the vehicles.

A major demonstration program will be conducted to stimulate the transfer of self-service concepts and its technology to the U.S. and to examine the impacts attributable to its application in the U.S. transit environment. Planning efforts undertaken during FY1979 will resolve the differences in operating procedures, transit equipment inventories, and cultural characteristics that have inhibited its transfer to the U.S. to date so that demonstrations undertaken in FY1980 can proceed with minimal technical and institutional difficulties. FY1980 demonstrations will address a variety of applications within the U.S. ranging from specialized, corridor-level implementations involving minimal hardware to small-scale implementation designed to demonstrate self-service as a means to obtaining practical, cost-effective intermodal integration.

Transfer Cost Elimination and Network Simplification

Depending on the urban area and trip purposes, it has been found that ten to fifty percent of the transit trips involve transfers for reaching final destinations. Most transit systems require an additional fare for

transferring among vehicles where already the inconvenience and the waiting time associated with the transfer is sufficient disincentive for the transit trip.

The objective of this demonstration is to evaluate and study the effect of transit transfer fares on transit usage and to develop means for eliminating transfers and simplifying network routes. Initially, a detailed study will be performed describing the extent of the transfer problem, its disadvantages to the user, and possible benefits that it provides to the transit operator. Specific recommendations will be made for demonstration concepts that should be undertaken to minimize problems associated with transfer mechanisms.

It is expected that short term demonstrations will be undertaken in numerous cities to test the impact of eliminating transfer fares and performing network route simplifications. From a selected list of transit properties, information will be obtained on transit transfer usage in situations of higher transfer usage and lower transfer usage including the factors leading to such usage. Information will be obtained to determine the revenue loss to the transit operators due to the elimination of transfer charges and the added convenience to the transit user. Strategies will be developed for developing alternative ways of dealing with the cost and convenience of transfer mechanisms. These strategies may include ways of collecting transfer charges without the problem of involving inconvenience to the transfer user and improving the accountability of transfer passengers to the transit operator.

Some of the questions to be addressed will include: Which transit trips are most accountable for transfers? Which market segments are more prone to transfer? How does the marginal cost of transfer charges as compared to the

originating fare affect transfer usage? How do transfer revenues affect total operating costs? How does the disincentive of transfer compare to the disincentive of transfer waiting time?

Auto Pricing Management Methods

During FY1978-79 we completed a study delineating possible demonstration concepts that could be undertaken for the overall purpose of encouraging high occupancy modes such as carpools and vanpools, as well as to directly discourage low occupancy commuter travel. Preliminary results showed four types of strategies all varying in degree of effectiveness, administrative complexity, enforcement legality and political acceptance: morning peak charges, parking space charges, revenue tax, and parking license.

In FY1979 we are expecting to implement a project involving mainly peak hour surcharges. While opportunities may arise for site to evaluate the other measures individually, the final results of our study and the numerous contacts with city officials have indicated a growing possibility and interest by cities to implement programs that combined numerous techniques. This trend has been substantiated by recent parking management plans (such as the one for Los Angeles) developed by cities. The array of techniques would also provide a balance between the use of incentives and disincentives in the area.

The purpose of this demonstration is to implement in one site a number of pricing oriented techniques including the parking pricing previously mentioned combined, as necessary, with other regulatory or physical means to manage and control the use of the automobile. In effect, this project will put together a number of complementary techniques both incentives and

disincentives to discourage auto use and encourage conventional mass transit, carpools. Corridor and spot pricing, which have previously been identified as independent projects, are specific control measures that can be used in conjunction with parking disincentives. And all these measures can be a part of the more versatile roadway pricing licensing schemes.

Other innovations that may be considered are:

- o pricing incentives to form carpools,
- o redistribution of employer parking subsidy to encourage the use of mass transit
- o prohibitions of commuter travel in residential area,
- o application of self cancelling parkings discs to control area and duration of parking,
- o providing retail center validation of transit tickets instead of parking tickets, and
- o charging low occupancy carpools to use express bus lanes

HOWARD SLAVIN
CHIEF, EVALUATION BRANCH, TRANSPORTATION SYSTEMS CENTER

The Transportation Systems Center has programmatic responsibility for the evaluation of all service and methods demonstration projects. Since Bert has already described the projects recently initiated under the pricing program, I shall endeavor not to go back over the same material, but rather to describe the objectives of the evaluation program. Also, I would like to solicit your views concerning priorities for information which can be obtained from the evaluations. Your inputs are needed to help us ensure that the evaluations of UMTA's pricing experiments are responsive to issues and questions of greatest relevance to transit operators, decisionmakers, and researchers.

First, I think it's important to point out that the demonstration projects and evaluations are cooperative efforts among the federal, state and local agencies and involve a great many people. Foremost among the participants in the evaluation program are the grantees who let government and industry take a very detailed look at their activities. This takes a great deal of courage and the cooperation of the grantees in the evaluation process has been very gratifying.

Most of the evaluations of individual demonstration projects are done by firms under contract to TSC. A number of individuals representing these firms are in the audience, and I hope they will feel free to comment and give details of the work in which they are involved.

The TSC staff manages the evaluation program and performs a wide variety of technical studies. Much of our in-house research is concerned with taking a cross-cutting view of demonstration project findings. A primary objective of ours is to analyze the findings from diverse sources in order to identify results and data that are transferable to other settings.

Another aspect of our work sponsored by the SMD program is evaluative research on significant transit experiments and innovative strategies which are not funded with federal money. At the present, for example, we are doing a series of case studies on fare reductions in a number of cities to ascertain the impacts that have occurred. In addition to evaluating demonstration projects, TSC also performs a large number of analytical studies on transit service improvement strategies and their impacts.

UMTA's Service and Methods Demonstration Program offers a unique opportunity to obtain very accurate and detailed measurements of the full range of impacts of urban transportation pricing policies and an ambitious evaluation program is currently underway. Among the impacts that are being analyzed are the effects of pricing policies and strategies on travelers, transit operators, employers, merchants and other relevant groups. In the course of this work, we hope to augment the factual basis for solving planning and policy problems involving questions of transportation pricing.

Obviously, there is a great deal of skepticism and controversy with respect to the merits of pricing strategies generally in public transportation. Perhaps, because I'm sitting between one fellow who is giving a great deal of thought to the consequences of reducing fares and another fellow who probably thinks it's a much better idea to raise fares, one issue that I would like to throw out to this group is, really, where do we stand?

When one thinks about the question of whether we should be reducing fares or increasing fares, I think that the first thing that becomes apparent is that it all depends --

and it all depends very much on the kinds of objectives we have.

If social benefits or equity considerations are the main justifications for fare-free transit, then the issue of fare elimination is a political matter which may be best resolved in the political arena. Also, there may be other ways to achieve the same objectives, perhaps through subsidies to particular users.

If a principal objective is extending transit service coverage or providing better service, higher fares may be required. Of course, changes of this sort will also change the distribution of benefits from public transportation. Reaching a consensus on the objectives sought through pricing public transit will not be easy. There are many conflicting opinions held by public officials and transit operators about the proper role for transit and the politics of fare policy questions.

Although the SMD program cannot be expected to resolve these conflicts, it is our hope that it can contribute to improved decisionmaking through a realistic assessment of the benefits and costs of different pricing policies.

Accordingly, a particular emphasis of the pricing demonstration evaluations is on quantifying the benefits to transit users and operators. To do this requires assessing the full range of travel behavior responses to price changes.

A limitation of much of the information currently available on the traveller response to pricing changes, is that it comes from observing differences in the behavior of a cross-section of individuals at one point in time. The demonstration program, however, enables us to measure direct changes through time in the responses of individual travelers. It is hoped that in this way some definitive and transferable answers will be obtained to questions regarding the effect of pricing policies on changes in the frequency, timing, destinations and modes of trips by individuals in various market segments. These findings should provide a useful information base for transit planners and operators.

Now, I would like to turn this back to the audience and get some feedback on whether or not these are the most important things to be learned from pricing experiments.

SERVICE AND METHODS DEMONSTRATIONS II

Chairperson: *Morris Rothenberg*, JHK and Associates

CONVENTIONAL TRANSIT SERVICE INNOVATIONS: *Joseph Goodman*, Conventional Transit Service Innovations, UMTA

PARATRANSIT: *Paul Fish*, Office of Service and Methods Demonstrations, UMTA

REPORTER: *Carla J. Heaton*, Evaluation Branch, Transportation Systems Center

TABLE OF CONTENTS

SERVICE AND METHODS DEMONSTRATIONS II

Joseph Goodman.....1

Paul Fish.....12

JOSEPH GOODMAN
CONVENTIONAL TRANSIT SERVICE INNOVATIONS
URBAN MASS TRANSPORTATION ADMINISTRATION

I'm not sure how many people in the audience are familiar with the activities of the Service and Methods Demonstrations Office so for those of you who are not familiar, our broad task is to develop, implement and evaluate demonstrations of new transit concepts to improve urban transportation and to disseminate that information to the transit community so that those new concepts will be adopted more readily by the transit community.

My particular job is that of the Branch Chief for one of the three major technical divisions of the Office of Service and Methods Demonstrations, conventional transit service innovations. Broadly defined, conventional transit service innovations means that transit service that operates on fixed routes and fixed schedules. There are two other technical divisions within the office, one is called special user group services and includes paratransit and elderly and handicapped services and the other covers the area of pricing policy. That area was just covered in the early afternoon session. Paul Fish will talk about paratransit immediately following me, and elderly and handicapped services will be covered in a session tomorrow morning.

What I'm going to try to do is briefly define current activities and near future planned activities for the conventional transit service innovations in about 20 minutes or less, and allow sufficient time for your comments and criticisms and

suggestions for future activities, since the reason we're here primarily is to allow for your input to our future program.

These are the three main project areas under conventional transit service innovations that we currently have the program divided into: One of our major project areas is techniques to provide priority for buses and other high occupancy vehicles, such as reserved lanes, ramp metering, signal preemption and the like.

The second major area of activity includes suburban services and the third area would include what I would call as other typical services, and I'll get into that later.

In the priority treatment area, we have several projects currently planned and each of these slides illustrates somewhat schematically what is intended by these concepts. Each of these slides will illustrate a demonstration concept that we have plans to implement somewhere around the country in the next year or two.

I might add that we have yet to locate a site to demonstrate each of these concepts so if you are a representative of a city or a transit agency that believes that you would be a suitable site for demonstrating this concept, I would like to know that and you can contact me in my office or come up to me after this session.

Previous to this here, the conventional transit service innovations division was primarily priority technique oriented. And we did, in fact, demonstrate a number of fairly successful priority techniques, for example, busways such as the Shirley

Busway outside of Washington, signal preemption in Miami, ramp metering with preferential entry for high occupancy vehicles and the like. And now there is a family of these techniques that are available and are being adopted reasonably well throughout the United States. There, however, remain a number of priority techniques that need some further testing and demonstration and on the screen is one and there will be a few more following.

This is traffic signal preferential treatment that could be either by signal preemption or signal progression. But the main idea here is to provide for priority for buses operating arterials and to increase their speed, reduce delay, and improve reliability.

Another technique that we have plans to implement the next year or two is what we call effective reserved curb lane. I'm sure most of you are familiar with the fact that reserved curb lanes exist in almost every large city in the United States, but generally speaking where there are not sufficient number of buses, they are not terribly effective. It is difficult to enforce the righthand lane because you must allow righthand turns from that lane and it is hard to distinguish violators in that lane from righthand vehicles. So we are searching for a way to improve the effectiveness of reserved curb lanes either through signing, signaling, some minor physical curb, mountable curb, or a combination of all of these.

We are also looking for a site to demonstrate a concurrent flow reserved freeway lane. There have been several demonstrations of this concept in the last few years. Some fairly

successful and one or two that were far from successful. We have examples of reasonable successful cases -- in Portland, Oregon on the Bansfield Freeway where a freeway was essentially widened and an additional lane was added and reserved for buses and carpools during the peak period. That is still in effect and reasonably successful. A similar situation was in Miami on I-95 where a median shoulder was upgraded into a moving lane and reserved for buses and carpools during the peak period.

We have examples of two unsuccessful cases. One here in Boston on the Southeast Expressway where an existing moving lane was taken away, essentially, from normal or non-HOV traffic and reserved for buses and HOV's. That was terminated last year, primarily because of opposition from non-users suffering a loss in capacity and a loss in the quality of travel. And the most infamous case perhaps is the Santa Monica Freeway diamond lane in Los Angeles, where the No. 1, or left-most moving lane on the Santa Monica Freeway was reserved for high occupancy vehicles during the peak period; that project also had a short life due to citizen and media reaction. However we learned a few things from these various cases of what to do and what not to do. And so we are looking for another site to demonstrate the basic principles that we have learned from these previous demonstrations..

Essentially, we're looking for a site where we can provide an additional lane and have it some way physically separated from the non-reserved lanes. We're looking for a site where that reserved lane can have a shoulder adjacent to it, a shoulder being desirable for reasons of safety and enforcement. We are

also looking for a site where we can add capacity, because we have found in the two previous cases where capacity has been taken away for non-HOV's they were terminated quite quickly. And we are also looking for a site where this added capacity can be supplied without major construction, because we have found out that major construction required to supply an additional lane can be quite expensive.

And we also have underway and are looking for an additional site for a demonstration of an auto restricted zone. For those of you who have the time, who will be in Boston either tonight or tomorrow, I encourage you to go downtown to the vicinity of Washington and Winter/Summer Street. It's in fact a short subway ride from here, two stops to Park Street. The project started on September 5th and is the first auto restricted zone demonstration in this country. Luckily it's going pretty well: Traffic has adapted, and I hear from merchants that sales are up and the media and the public seem to be taking to it quite well.

We have plans to fund additional demonstrations of this technique in Providence, Rhode Island, Memphis, Tennessee, and New York starting next year and the year after, and we are looking for one additional site as well.

I'm not sure how visible this slide is but I'll try and describe it and what it means. It explains the reason why we are putting increased emphasis and attention on demonstrations on improving suburban transit services. What this slide shows is the trip matrix of home to work trips made between residents who live in the city and suburbs to the CBD, remainder of the

central city and the suburbs. What you can observe -- and these are typical numbers for a great many urban areas throughout the country -- is the fact that a relatively small percentage of home to work trips (and this goes for most of other trips as well) are CBD bound. In a typical urban area they comprise 15 percent or sometimes less, about 10 percent. The largest single cell of trip-making is between suburb and suburb, that is, made by people who live in the suburbs and have destinations in the suburbs. And regretably I have to report the transit penetration of this market, the suburb to suburb market, is about two percent across the country as a whole. And, yet, it is the single largest component of the urban travel market and is roughly about half the urban travel market. I think we have to do a better job in this market because, first, it is the largest single component of the urban travel and market, and second, for a more Machiavellian view perhaps, because I think most of the kind of support that we need for transit programs for the future in terms of political support and financial support will have to come from the people who live in the suburbs who are by and large the affluent, articulate people in the community, and who right now do not see any need for their supporting transit because they cannot visualize it as assisting them. They cannot visualize themselves as using it. I think we have to demonstrate and start supplying improved transit services to the suburbs in order to get the kind of support that I think will be necessary to provide improved transit service throughout the urban area.

We have plans for two demonstrations in the next year. One

is called timed transfer. It has been successfully applied in several Canadian cities, among them Edmonton, Alberta, and Vancouver, British Columbua. Essentially the idea is to concentrate suburban transit service in what you might call a spider web pattern, with routes intersecting at major suburban activity centers, such as town centers or shopping centers, on routes and schedules that allow for a transfer between intersecting lines of under five minutes. One of the reasons that suburban transit mode split presently is very low, about two percent, of course is the fact that a great many people in suburbia have cars available to them, about 80 percent or more, and parking charges are usually zero in suburbia, but another reason is that the kind of transit service offered for the travel market that's out there just does not work. Suburban travel patterns are highly dispersed and usually one single transit route cannot begin to supply the kind of demand that exists. So we have to unify, coordinate our transit services better. And for anyone who has ever tried to make a trip to suburbia on transit I'm sure will begin to identify with the kind of frustration you perceive when you wait around in a suburban location perhaps 30 minutes or 45 minutes or an hour to make a connection. I think it might be edifying for more of you to try and make these kinds of trips and see just how terrible it can be.

Vancouver and Edmonton several years ago implemented a system described roughly as you see on the screen where buses intersect at suburban activity centers and the transfers are made extremely quickly and without the kind of frustration we see in

most of our cities. We are now looking for a site to demonstrate this concept.

The other concept which to my knowledge has not had any major demonstration or has not been implemented anywhere that I'm familiar in the United States is what we call beltway bus service. I'm sure again most of you are familiar with the fact that virtually all of the 20 or 30 largest urban areas are encircled by circumferential freeways, thanks to the interstate highway program, yet virtually no city, no urban area has any extensive or even semi-extensive use of these beltways for bus service. Yet, if you talk to the traffic engineers in your community or if you're familiar yourself you'll know that the beltway is often the largest single volume highway in any volume area. It is indicative of the major suburb travel desire that exists. What we intend to do in this demonstration is to try and develop routes and services that utilize this beltway for a significant portion of their trip -- initially, I think, by devising routes that will have a pick-up portion on an arterial that connects with the beltway traveling non-stop or line-haul along the beltway and then leaving the beltway for their discharge portion. If that seems to work and if we can identify a reasonable number of those kinds of routes, I think the next step might be to modify the beltway in some way to provide for interchange facilities within the interchange areas, to allow people to transfer between radial arterial routes and the beltway routes. I think that's going to require some additional work and perhaps more resources, so that, I think, will have to wait for the second step.

And the last of our major areas of attention fall into the category of what I call typical services, or the kinds of problems that affect most of the transit service that is now supplied throughout the country.

One major problem we have identified and I hope all of you can identify with it as I have is that of transit reliability. We have found through various literature searches of work done in the United States and overseas that reliability is an extremely important characteristic of transit service and people either choose or choose not to use transit based on whether or not they think it's reliable.

The slide illustrates a common occurrence: for example, transit buses are scheduled on a five or six minute headway along a particular arterial and you should be able to go out and stand on the street corner and not have to wait more than five minutes or two and a half or three minutes on the average, but what typically occurs is that you go out there and wait 15 or 20 minutes and three buses arrive all at once. Various techniques have been identified and have been tried in several other countries to correct this kind of circumstance, to improve the reliability of bus schedules, so that people can go out and be more sure of the kind of transit service they will expect.

We are in the process of identifying one or more sites for this concept and have contacted a number of cities. So if you're not already one of those cities, please do not apply for this.

This, for want of a better name, we call zoned bus. It is a technique concept that has been used in several other countries,

notably Japan and Germany. Essentially, the idea behind this concept is to simplify transit routes within a particular corridor. In most urban areas what presently exists is a very large multiplicity of discrete routes in any one corridor. To give you an example, prior to the opening of the Washington Metro System, there were 750 discrete routes serving the Washington urban area. That number of discrete routes makes it virtually impossible to convey the kind of information with regard to route and schedule that a non-regular user must have in order to plan a trip. And one of the examples or insights we can offer is that over the last 30 years of transit, usage has fallen drastically, very sharply; however what has happened is that most of that loss of transit usage has occurred during the off-peak period or by non-regular users. Transit patronage by regular users or those who are using it for work purposes or are heading for the CBD have remained roughly equal. What has happened is that we have dramatically increased the peak-to-base ratio which has made supplying transit services much more expensive.

So what zoned bus is all about is trying to simplify transit services in a particular corridor by selecting one arterial in that corridor, the main arterial or the arterial carrying the major bus service, significantly increasing the amount of bus service on that arterial so that the service is operating on at least a 10-minute headway or better (eliminating the need for a schedule) and then instead of a number of different feeders or branches to that major arterial, having feeders with transfers required. And this again will present a problem because we

know from experience that transferring induces an impedence that most people like to avoid. But perhaps by a good transfer facility, and improvements in service reliability we can improve this transfer.

I might add that this concept is also quite compatible with the timed transfer concept illustrated earlier, because the feeders could in fact be circumferential routes that supply the suburb-to-suburb demand as well as being feeders to the major radial arterial routes.

That, I think, summarizes in my allotted time or less the kind of projects we had planned for this year and next. I will entertain questions.

PAUL FISH
OFFICE OF SERVICE AND METHODS DEMONSTRATIONS
URBAN MASS TRANSPORTATION ADMINISTRATION

In the last four years, since I have been at UMTA and since paratransit has become a major part of our demonstration program, paratransit has come a long way. Four years ago we had no demonstration projects in paratransit. We began with our involvement in the Rochester demonstration. In the last fiscal year, which ended in September, we funded nine active projects or planning studies, which would lead to demonstrations, and we currently have 18 active demonstrations or planning studies underway. Paratransit is certainly no longer an infant in the transportation field. I'm not sure whether it's become an adult. It's at least an adolescent with many of the problems that go along with adolescence. But it's, I think, on its way to maturity.

In the demonstration program itself probably the major change which has occurred over the last few years is the fact that we're now focusing on demonstrations in much more complex situations, in larger urban areas, bringing in a range of services and service types which we did not have before. The first major area of our demonstration program is the demand responsive area.

Demand responsive in the beginning was referred to as Dial-A-Ride, and at one time I think Dial-A-Ride was almost synonymous with paratransit, but we've moved a long way since that time. Demand responsive transportation has really changed

a lot in the last few years, and I think it's probably changed a lot for the better. Although Dial-A-Ride is no longer considered the panacea that it once was, we have learned a lot, especially from our demonstration in Rochester and from other experiences of various Dial-A-Ride services around the country. We have learned a lot of the problems with demand responsive transportation but we've also learned that there are a great many advantages.

One of the things we've learned in the last few years, for example, is that demand responsive transportation should probably not be operated by a public operator on a wide scale. The use of private operators in many situations, perhaps most situations, appears to be much more cost-effective. Another thing which we've learned is that the computer dispatching works very effectively in some situations, however the cost may be high as we've learned in Rochester. We're continuing to do more work with computerized vehicle control and dispatching in Rochester. We're also currently working with Orange County Transit District to add a computerized dispatching system to their existing demand responsive system, based on what was developed in Rochester.

Another thing which we're leaning toward now is a greater opportunity for integration with the fixed route system. There has been a lot of development with integration in the Rochester system. The Orange County system is designed in such a way that there will be complete integration of the demand responsive modules with the existing fixed route system.

Some other possibilities in this area include such techniques as route deviation and point deviation, which are variations on the demand responsive.

Something that's already been touched on a little bit today in an earlier session if any of you happened to be there was some of the progress in the Rochester project which I think has been a major advance in the state of the art demand responsive transportation. During fiscal year 1978, just a year ago now, we made a major addition to the Rochester project. We expanded service to two new service areas, two suburban communities in the Rochester area. In these two communities, unlike the first two communities in Rochester, service is being provided under contract to a private taxi operator. The contract was let under competitive bid.

In addition, the Rochester system is also computer controlled. The entire Rochester system is going to be expanded and should give us a lot more information on the operation of such a system in a larger situation.

One of the major conclusions we have made about demand responsive transportation is that it is not going to be cheap but it may be cheaper than fixed route transit in some cases. And the long-range choice in demand responsive may be not between fixed route and demand responsive, but between demand responsive and no service at all, because of the cost involved in providing these types of services to low density suburban type communities.

The second area of our involvement is integration of a

range of transit, paratransit services, which includes the taxi feeder area and so on. There are in this area a great many similarities to demand responsive but there are also some differentiating attributes.

Integration of taxi with fixed route systems makes use of a tremendous underutilized resource, a resource that's already there. We don't have to come up with something new, build a new system. It's a system that is already there in most communities. In most situations an integration of a taxi system with a fixed route system can provide some services much more efficiently and effectively than fixed route can in low density areas or at times of low demand -- evenings, weekends and so on.

Another logical area for the use of taxi systems is in the provision of special services for the elderly, handicapped and other categories of special users. There's going to be a session tomorrow morning devoted specifically to our demonstration program relating to the special user groups, so I'm not going to get into it today in a great deal of detail.

One example of a current project that we have in progress is the taxi feeder service in Saint Bernard Parish, Louisiana, which is a suburb of New Orleans. It involves a taxi feeder to an existing fixed route bus system. The project is very small, but it has demonstrated, very well I think, the operational feasibility of integrating an existing taxi system with an existing bus system.

Some of the future directions we're going to be taking in this area include the integration of taxi systems in a more

complex urban area. We're already working with several communities, including Dade County in Florida, to develop a fully integrated paratransit system.

We're also moving in the direction of working with a multiple purpose type system, rather than just the single function such as taxi feeder. We're looking at a system which provides taxi feeder, low density type service, late night/weekend type service, specialized services for the special user groups, coordination of Social Service Agency transportation and so on. All integrated into one single system and administrated from a single organization.

Another important area we're working in is attempting to overcome a lot of the institutional, legal, and regulatory obstacles which prevent a lot of these services from being implemented. We have overcome a lot of the obstacles in particular localized situations of our demonstration projects, but there's a lot more to be done. And maybe this is the single area which needs the most work in the future.

Another major area of our program in the past has been in the area of commuter ride-sharing. We currently have four projects which relate to vanpooling. We're also involved in carpooling, subscription bus and so on. These three areas offer more types of public transportation options and appeal to another market segment, a market segment which we feel isn't being met by any other type of transportation service. This is just another way of identifying a market, identifying a need and attempting to devise a service to meet those needs.

As I've said before, we are currently involved with four vanpooling demonstrations sponsored by the Service and Methods Demonstration Program. These four are in Tidewater-Norfolk area of Virginia, Knoxville, Tennessee, the Minneapolis-St. Paul area, and Marin County, California, which is the county just north of San Francisco, across the Golden Gate Bridge. All of the projects have been successful to some degree in attracting private auto users. Some have had a great deal of success and some are still struggling with trying to identify the market for vanpooling and attracting those users.

One thing that we have learned from all four of these projects is that vanpooling alone really isn't enough. It doesn't offer enough of a choice to the commuter to be attractive. What we really have to offer is an entire range of services to the commuter, which includes carpooling, vanpooling, subscription bus, and, in addition, information on the existing transit system, if it does exist, and in most of these situations it does. When an organization is able to market an entire range of services, they have a much better method of attracting users than if they were only offering one type of service.

One type of approach which may be effective in this area is the use of a broker, and I'm going to get into the brokerage area a little bit more in a couple of minutes. A ride-sharing broker which attempts to meet the demand for commuter service with a range of different services. This is basically the approach which is being used in the Minneapolis-St. Paul project where the transit authority has organized itself as a ride-

sharing broker for several non-CBD employment locations with large employment populations.

Another area which we're involved in is subscription bus service. One particular type of subscription bus service being demonstrated right now is not the traditional subscription bus service which most of us have heard of, but employment-centered bus service, a term coined by its inventor. This concept being implemented in a demonstration project run by the Southern California Rapid Transit District in a suburban employment center in the Los Angeles area. The transit operator is providing subscription service with routes and schedules specifically designed for the needs of the employees at the employment center. It's essentially customized service marketed to those specific employees. Because they can schedule in such a way the operator can run multiple trips per peak period. In this situation he's averaging two routes per bus per peak period, thereby theoretically increasing his efficiency. The service in Los Angeles has only been going for a few months and the results are still not very good: the anticipated ridership level hasn't yet materialized. But we think that this concept has a lot of application, and we are interested in doing a demonstration in another location.

Another area of our involvement in the paratransit program and maybe the area which has been receiving the most attention over the last couple of years is the area of brokerage. One good example of implementation of a brokerage is in the community of Westport, Connecticut, where we began a demonstration about

two years ago. Westport has received a lot of attention because of its successful system. It's specifically applicable to the needs of a small community (Westport has a population of about 30,000 people).

The brokerage system in Westport includes several major transportation elements, including an existing fixed route bus system, a shared-ride taxi under which the authority contracts with a private taxi operator to provide this service, specialized services for the elderly and handicapped include lift-equipped service and package delivery. In addition, the brokerage is also going to expand in the near future to include commuter ride-sharing, carpooling and vanpooling.

Another example of brokerage is our project in Knoxville, Tennessee. The Knoxville project has had a great deal of success in brokering ride-sharing, particularly under its vanpooling program. There have been a lot of institutional problems which have been encountered and have somewhat impeded its progress in expanding the total brokerage function.

Another type of approach to brokerage is being undertaken in Chicago - actually in the suburbs of Chicago - in a project sponsored by the Regional Transportation Authority. In this project the transportation authority, the RTA, serves as a coordinating umbrella-type agency for paratransit services in suburban communities. The RTA doesn't function as an operational broker but rather as an over-all agency of providing financial assistance, management, technical assistance and so on, to the six individual projects.

The services in the six projects vary from community to community, depending on the particular needs of that community. So it's a service designed by the communities with the RTA acting as an overall coordinator and advisor for these projects. We're moving in the direction of more complex situations, more complex settings for the demonstrations, principally in the areas of larger urban areas to include more services, more complex arrangements for delivering those services and so on. We're attempting to involve transportation authorities or operators more and more as at least the brokers or providers of a great many of these services.

We're also working more and more with contracting service through existing agencies, such as transportation authorities contracting with other operators to actually perform the service.

And finally, we're working in the area of overcoming a lot of the institutional obstacles in the paratransit area. The legal requirements, insurance, regulation, and so on.

So if there are any questions, I will be glad to answer them and I'm particularly interested in your feedback and comments on our program.

DOT LIBRARY
00399537